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(comput\$3 or calculat\$4 or
 determin\$3) same histogram\$3 same
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-5 BRS: compar\$3 same differen\$4 same threshold\$3

BRS:

5 BRS: feature\$3 same segment\$7 same

Ⓢ Pending

 Active

• L1: (20) ((comput\$3 or calculat\$4 or determin\$3) with color\$3 with histogram\$3) same segment\$3 s...

L2: (18) ((comput\$3 or calculat\$4 or determin\$3) with histogram\$3) same segment\$6 same (features\$...

L3: (32) ((comput\$3 or calculat\$4 or determin\$3) with histogram\$3) same segment\$6 same color\$3 s...

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L4: (1341) ((comput$3 or calculat$4 or determin$3) with histogram$3) same color$3
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• L5: (0) feature\$3 same segment\$7 same descript\$6

• L6: (2148) features\$3 same segment\$7 same descript\$6

L7: (33) 4 and 6

• L8: (274) features\$3 same segments\$7 same (video\$1 with audio\$1)

L9: (27) 4 and 8

L10: (6604) (feature\$3 or object\$3) same segment\$7 same (descript\$6 or video\$1)

L11: (3551) ((feature\$3 or object\$3) with segment\$7) same (descript\$6 or video\$1)

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

Search [] Go [] Browse [] Queue [] Clear []

DB3 USPAT, US-PGPUB, ☐ Plurals

Default operator ☐ OR ☒ Highlight all hit terms initially

(compute\$3 or calculate\$4 or

determining same histograms same

color\$3 same segment\$5 same

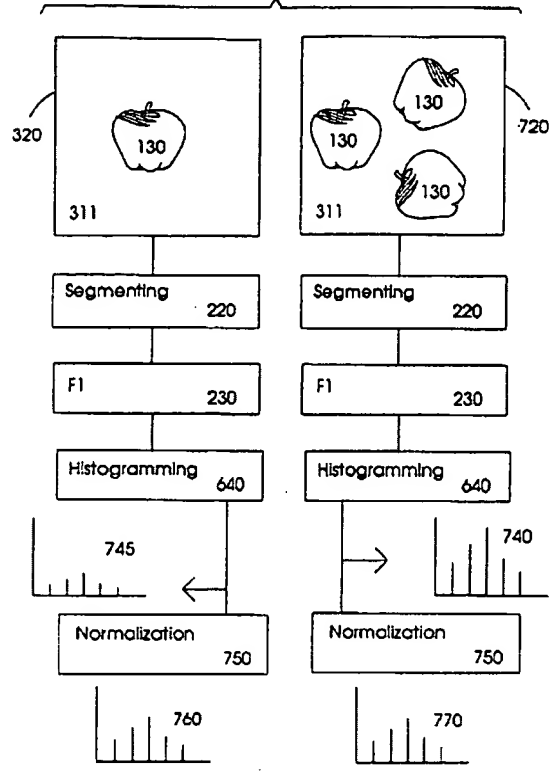
(audio\$3 or video\$3)

 BRS form
 ISAR form
 Image
 Text
 HTML

	U	1	Document ID	Issue Da	Page	Title	Current C	Current XR	Retrieval	Inventor	S	C	P	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000
1			US	20040205	10	Method and system for	435/40.5	382/128;		Steiner, Georg E. et																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		</																																																																																																																																																																																								

and 760 respectively) are identical. This res image
720 with a larger number of objects 131 will c
to
each bin of the histogram 740 than the image 3
objects
131 will contribute to its respective histogram
effect occurs if the size of the object 131 is
in
the other 320.) For example, area normalizing
normalized histograms (760, 770) because the d
image to its histogram is divided by its respe

FIG. 7



	Document I	Kind Code	Source	Issue D	Page
10	US 2003000		US-PGP	2003010	13
11	US 2003000		US-PGP	2003010	56
12	US 2002006		US-PGP	2002052	22
13	US 2002005		US-PGP	2002051	34
14	US 2001000		US-PGP	2001062	18
15	US 2001000		US-PGP	2001062	18
16	US 6606409		USPAT	2003081	18
17	US 6487554		USPAT	2002112	16
18	US 6411953		USPAT	2002062	17
19	US 6295371		USPAT	2001092	13
20	US 6278949		USPAT	2001082	21
21	US 6195458		USPAT	2001022	17
22	US 5960104		USPAT	1999092	26
23	US 5933524		USPAT	1999080	9
24	US 5911002		USPAT	1999060	15
25	US 5576950		USPAT	1996111	23
26	US 5546475		USPAT	1996081	29
27	US 4175860		USPAT	1979112	11

US-PAT-NO: 6621926

DOCUMENT-IDENTIFIER: US 6621926 B1

TITLE: Image retrieval system histogram

----- KWIC -----

Abstract Text - ABTX (1):

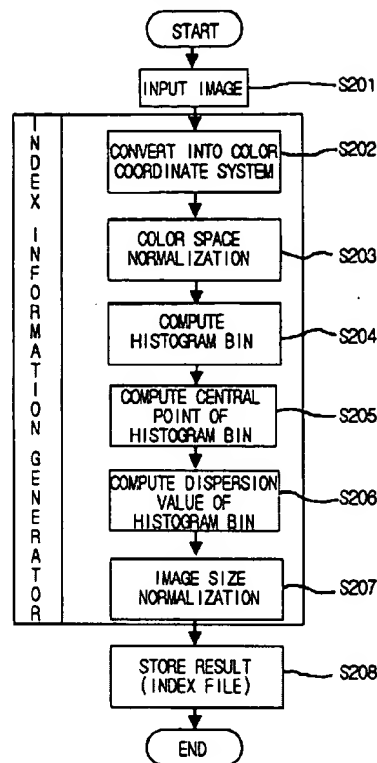
An image retrieval system and method using determining central points and dispersion value information of color about respective histogram

Details Text Image HTML KWIC

	Document I	Kind Code	Source	Issue D	Pages
28	US 2002010		US-PGP	2002080	25
29	US 2002009		US-PGP	2002072	17
30	US 2002008		US-PGP	2002062	15
31	US 2002007		US-PGP	2002062	14
32	US 2002006		US-PGP	2002060	115
33	US 2002006		US-PGP	2002053	81
34	US 2002006		US-PGP	2002052	22
35	US 2002005		US-PGP	2002051	126
36	US 2002005		US-PGP	2002051	15
37	US 2002005		US-PGP	2002051	34
38	US 2002004		US-PGP	2002041	103
39	US 2002002		US-PGP	2002030	67
40	US 2001001		US-PGP	2001080	38
41	US 6675174		USPAT	2004010	40
42	US 6674907		USPAT	2004010	21
43	US 6643643		USPAT	2003110	12
44	US 6636635		USPAT	2003102	94
45	US 6621926		USPAT	2003091	9

Details Text Image HTML

FIG. 2



Details Text Image HTML Full

Laid-Open Patent No. 8-249349 discloses pattern amounts

(representative colors) of a plurality of block image. However, in this technique, the distance of

two image blocks to be matched must be computed. computation volume. When a representative color

three, i.e., R, G, and B data must be processed computations. Also, since comparison is made itself,

high comparison precision can be obtained but obtained by a search even due to a change in a

position of an object. In other words, a so-called search

Details Text Image HTML KWC

	Document I	Kind Code	Source	Issue D	Page
29	US 2002009		US-PGP	2002072	17
30	US 2002008		US-PGP	2002062	15
31	US 2002007		US-PGP	2002062	14
32	US 2002006		US-PGP	2002060	115
33	US 2002006		US-PGP	2002053	81
34	US 2002006		US-PGP	2002052	22
35	US 2002005		US-PGP	2002051	126
36	US 2002005		US-PGP	2002051	15
37	US 2002005		US-PGP	2002051	34
38	US 2002004		US-PGP	2002041	103
39	US 2002002		US-PGP	2002030	67
40	US 2001001		US-PGP	2001080	38
41	US 6675174		USPAT	2004010	40
42	US 6674907		USPAT	2004010	21
43	US 6643643		USPAT	2003110	12
44	US 6636635		USPAT	2003102	94
45	US 6621926		USPAT	2003091	9
46	US 6584223		USPAT	2003062	46

Details Text Image HTML Full



US 6584223 B1

(12) United States Patent
Shiroma

(10) Patent No.: US 6,584,223 B1
(45) Date of Patent: Jun. 24, 2003

(54) IMAGE SEARCH APPARATUS AND METHOD

(75) Inventor: Hirotsugu Shiroma, Machida (JP)
(73) Assignee: Canon Kabushiki Kaisha, Tokyo (JP)
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(c) by 0 days.

(21) Appl. No.: 09/281,783

(22) Filed: Mar. 31, 1999

(30) Foreign Application Priority Data

Apr. 2, 1998 (JP) 10-090133

Apr. 30, 1998 (JP) 10-121044

(51) Int. Cl. G06K 9/34; G06K 9/46; G06K 9/68

(52) U.S. Cl. 382/173; 382/193; 382/180; 382/192; 382/218; 382/219

(58) Field of Search 382/164, 173, 382/180, 190, 192, 195, 203, 205, 209, 215, 216, 218, 305, 327, 306, 358/400, 707/3, 6

(56) References Cited

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6,340,818 B1 1/2001 Rato et al. 382/170
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6,381,965 B2 4/2002 Shimamura 382/190

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JP 8-241333 9/1996
JP 8-249340 9/1996

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"Decoding Image Semantics Using Composite Region Templates", J.R. Smith, et al., Proceedings, IEEE Workshop on Content-Based Access of Image and Video Libraries (CAB No. 98EX173), Santa Barbara, CA, pp. 9-13, Feb. 21, 1998.
"An Image Database System with Fast Image Indexing Capability Based on Color Histograms", Q. Yihong, et al., Proceedings of the Region 10 Annual International Conference (TENCON) IEEE, vol. CONF. 9, pp. 407-411, Aug. 22, 1994.
U.S. Ser. No. 06/972,433, Filed Nov. 18, 1997, now pending.

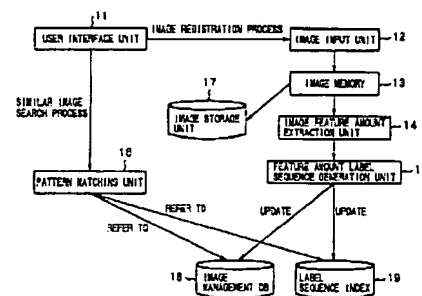
* cited by examiner

Primary Examiner—Pencos Tera
Assistant Examiner—Amir Alavi
(74) Attorney, Agent, or Firm—Fitzpatrick, Cella, Harper & Schinn

(57) ABSTRACT

An image feature amount extraction unit and feature amount label matrix generation unit generate a label sequence from image data. An image management DB stores image data stored in an image storage unit and label sequences corresponding to the image data in correspondence with each other. A label sequence index registers, in units of labels, image data including the labels and the members of labels included in those image data. Upon search, a pattern matching unit extracts label sequences which are similar to the label sequence of a query image to some extent from the label sequence index, computes similarities between the extracted label sequences, and the label sequence of the query image, and outputs images, in which the computed similarities exceed a predetermined value, as search results.

72 Claims, 27 Drawing Sheets



Details Text Image HTML Full

US-PAT-NO: 6556711

DOCUMENT-IDENTIFIER: US 6556711 B2

TITLE: Image processing apparatus

----- KWIC -----

Brief Summary Text - BSTX (14):

An example of a method of segmenting a color threshold-value method (see "Structuring of Color Partition Processing", Journal of Information Vol.

100 No. 12, 1997, 1120-1126, Dec. 1997, 1007, 1008

Details Text Image HTML KWIC

	Document	Kind	Code	Source	Issue	D	Page
30	US 2002008			US-PGP	2002062	15	
31	US 2002007			US-PGP	2002062	14	
32	US 2002006			US-PGP	2002060	115	
33	US 2002006			US-PGP	2002053	81	
34	US 2002006			US-PGP	2002052	22	
35	US 2002005			US-PGP	2002051	126	
36	US 2002005			US-PGP	2002051	15	
37	US 2002005			US-PGP	2002051	34	
38	US 2002004			US-PGP	2002041	103	
39	US 2002002			US-PGP	2002030	67	
40	US 2001001			US-PGP	2001080	38	
41	US 6675174			USPAT	2004010	40	
42	US 6674907			USPAT	2004010	21	
43	US 6643643			USPAT	2003110	12	
44	US 6636635			USPAT	2003102	94	
45	US 6621926			USPAT	2003091	9	
46	US 6584223			USPAT	2003062	46	
47	US 6556711			USPAT	2003042	80	

Details Text Image HTML Full



(12) United States Patent
Koga et al.

(10) Patent No.: US 6,556,711 B2
(45) Date of Patent: Apr. 29, 2003

(54) IMAGE PROCESSING APPARATUS AND METHOD
Inventors: Shichiro Koga, Yasumasa (JP); Yoshitake Ishida, Kawasaki (JP); Osamu Yoshizaki, Hachioji (JP)
(73) Assignee: Canon Kabushiki Kaisha, Tokyo (JP)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(c) by 0 days.

(21) Appl. No.: 09/162,727

(22) Filed: Sep. 30, 1998

(45) Prior Publication Data

US 2002/004307 A1 May 30, 2002

Related U.S. Application Data

(62) Division of application No. 08/579,150, filed on Dec. 7, 1995, now Pat. No. 5,648,185

(30) Foreign Application Priority Data

Dec. 28, 1994 (JP) 4-325,111

Jun. 8, 1995 (JP) 7-141,892

(51) Int. Cl. G06K 9/34

(52) U.S. Cl. 382/173; 382/299; 358/465; 358/466

(54) Field of Search 382/154, 173, 382/175, 177, 180, 298, 299; 358/453, 462, 464

(56) References Cited

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5,615,016 A 3/1997 Sakai 382/734

FOREIGN PATENT DOCUMENTS
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JP 05714472 10/1993 G06K 9/30

OTHER PUBLICATIONS

Yaman et al., "Multimedia Document Structuring Processing System", The Journal of the Institute of Image Electronics Engineers of Japan, vol. 19, No. 5, pp. 236-255, 1990.

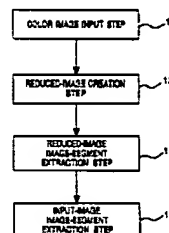
(List continued on next page.)

Primary Examiner—Kings W. (74) Attorney, Agent, or Firm—Fitzpatrick, Cella, Harper & Scinto

(57) ABSTRACT

A digital color image to be processed is inputted at a color image input step, image segments are extracted from the input color image at an image-segment extraction step, and the data of the extracted image segments is created. Next, image-segment components in each extracted image segment are discriminated at an image-segment discrimination step, and each extracted image segment is subjected to zoom processing, which conforms to the discriminated image-segment component, at an adaptive zoom step, thereby creating a zoomed image of the input image. The zoomed image that has been created is displayed, outputted as a hard copy or delivered to a transmission line at a color image output step. Accordingly, a color image in which image segments having different characteristics are mixed can be subjected to excellent processing.

10 Claims, 55 Drawing Sheets



Details Text Image HTML Full

be generated either in part or in its entirety appropriate user input interface (e.g., speech Users can input to the camera the program desc especially those high-level (or semantic) info difficult to automatically extract by the syst parameters (e.g., date and time), as well as camera

(e.g., color histogram to be included in the d

in generating the program description scheme. the system can browse the camera content, or t its description scheme to the local storage fo possible to update or add information to the d the camera.

Detailed Description Text - DETY (645)

Details Text Image HTML KMC

	Document I	Kind Code	Source	Issue D	Page
42	US 6674907		USPAT	2004010	21
43	US 6643643		USPAT	2003110	12
44	US 6636635		USPAT	2003102	94
45	US 6621926		USPAT	2003091	9
46	US 6584223		USPAT	2003062	46
47	US 6556711		USPAT	2003042	80
48	US 6512846		USPAT	2003012	24
49	US 6504951		USPAT	2003010	23
50	US 6487554		USPAT	2002112	16
51	US 6411953		USPAT	2002062	17
52	US 6411724		USPAT	2002062	11
53	US 6404925		USPAT	2002061	64
54	US 6400853		USPAT	2002060	37
55	US 6373979		USPAT	2002041	15
56	US 6295367		USPAT	2001092	44
57	US 6282317		USPAT	2001082	19
58	US 6263088		USPAT	2001071	43
59	US 6236395		USPAT	2001052	44

Details Text Image HTML Full

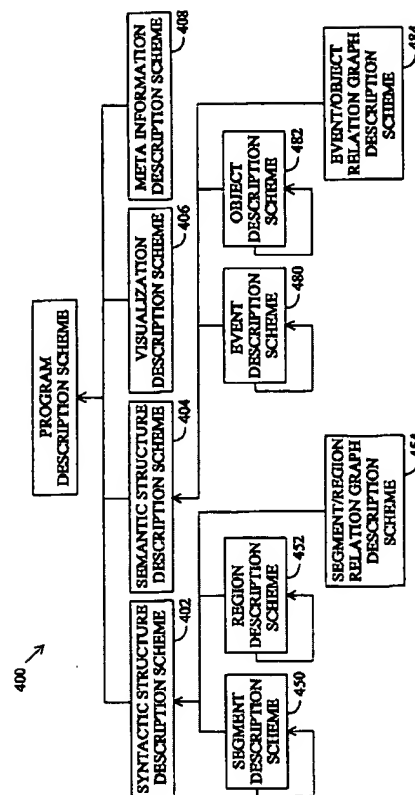


FIG. 13

US-PAT-NO: 6185314

DOCUMENT-IDENTIFIER: US 6185314 B1

TITLE: System and method for m
object model information

----- KWIC -----

Detailed Description Text - DETX (197):

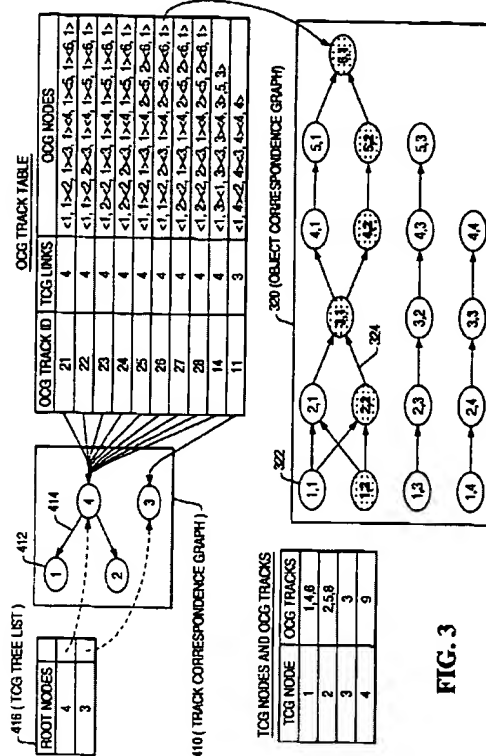
The features extracted for each region clus
momentfeatures, contour features and color features.
have

U.S. Patent

Feb. 6, 2001

Sheet 3 of 20

US 6,185,314 B1



US-PAT-NO: 5911002
DOCUMENT-IDENTIFIER: US 5911002 A
TITLE: Pattern recognition sys

----- KWIC -----

Brief Summary Text - BSTX (4):

The techniques capable of automatically examining are disclosed in, for instance, JP-A-63-94156, and JP-A-5-296915, in which soil contained in the urine are photographed as still conventional

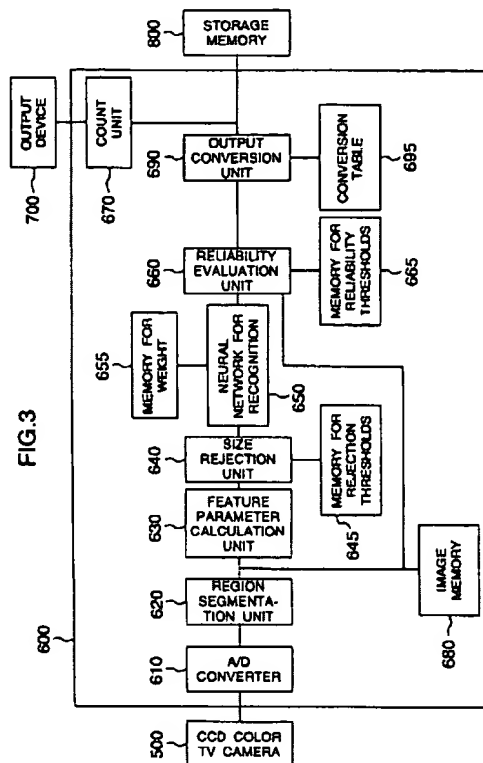


FIG. 3

	Document I	Kind Code	Source	Issue D	Page
46	US 6584223		USPAT	2003062	46
47	US 6556711		USPAT	2003042	80
48	US 6512846		USPAT	2003012	24
49	US 6504951		USPAT	2003010	23
50	US 6487554		USPAT	2002112	16
51	US 6411953		USPAT	2002062	17
52	US 6411724		USPAT	2002062	11
53	US 6404925		USPAT	2002061	64
54	US 6400853		USPAT	2002060	37
55	US 6373979		USPAT	2002041	15
56	US 6295367		USPAT	2001092	44
57	US 6282317		USPAT	2001082	19
58	US 6263088		USPAT	2001071	43
59	US 6236395		USPAT	2001052	44
60	US 6185314		USPAT	2001020	43
61	US 5960104		USPAT	1999092	26
62	US 5933524		USPAT	1999080	9
63	US 5911002		USPAT	1999060	15

US-PAT-NO: 5848185
DOCUMENT-IDENTIFIER: US 5848185 A
See image for Certificate of Correction
TITLE: Image processing apparatus

----- KWIC -----

Brief Summary Text - BSTX (14):

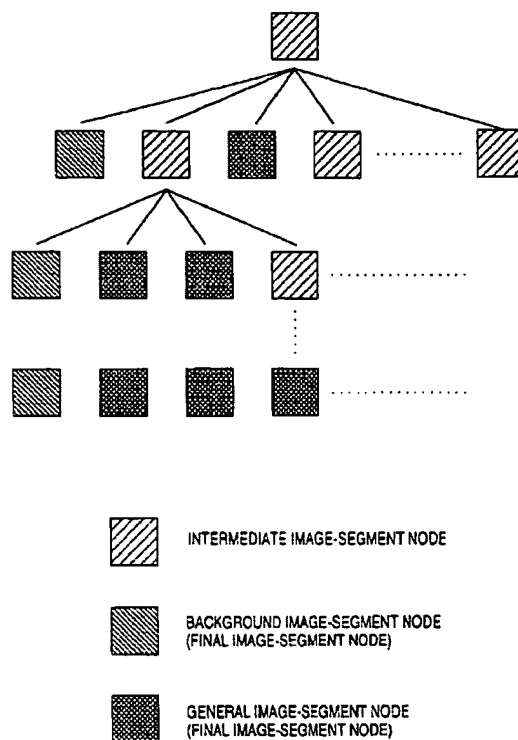
An example of a method of segmenting a color image using a threshold-value method (see "Structuring of Color Image Partition Processing", Journal of Information Science, Vol. 1, No. 1, 1977).

Details Text Image HTML KWIC E

	Document I	Kind Code	Source	Issue D	Pages
48	US 6512846		USPAT	2003012	24
49	US 6504951		USPAT	2003010	23
50	US 6487554		USPAT	2002112	16
51	US 6411953		USPAT	2002062	17
52	US 6411724		USPAT	2002062	11
53	US 6404925		USPAT	2002061	64
54	US 6400853		USPAT	2002060	37
55	US 6373979		USPAT	2002041	15
56	US 6295367		USPAT	2001092	44
57	US 6282317		USPAT	2001082	19
58	US 6263088		USPAT	2001071	43
59	US 6236395		USPAT	2001052	44
60	US 6185314		USPAT	2001020	43
61	US 5960104		USPAT	1999092	26
62	US 5933524		USPAT	1999080	9
63	US 5911002		USPAT	1999060	15
64	US 5883968		USPAT	1999031	27
65	US 5848185		USPAT	1998120	83

Details Text Image HTML Full E

FIG. 5A



with another based on, for example, color histogram similarity
 step, images are found by luminance feature vector
 the
 image into regions and computing color histogram
 spatial information in the image is preserved.
 the
 top-ranking images resulting from the initial
 again
 for similarity using a color-histogram similarity
 similarity
 approach.

Details Text Image HTML KMC

	Document I	Kind Code	Source	Issue D	Pages
1	US 2004001		US-PGP	2004012	16
2	US 2003022		US-PGP	2003121	23
3	US 2003012		US-PGP	2003070	25
4	US 2003007		US-PGP	2003042	29
5	US 2003000		US-PGP	2003010	15
6	US 2002016		US-PGP	2002110	17
7	US 2002013		US-PGP	2002092	18
8	US 2002013		US-PGP	2002091	20
9	US 2002006		US-PGP	2002052	22
10	US 2002002		US-PGP	2002030	67
11	US 2001000		US-PGP	2001062	18
12	US 2001000		US-PGP	2001062	18
13	US 6606409		USPAT	2003081	18
14	US 6404925		USPAT	2002061	64
15	US 6373979		USPAT	2002041	15
16	US 6195458		USPAT	2001022	17
17	US 5911002		USPAT	1999060	15
18	US 5576950		USPAT	1996111	23

Details Text Image HTML Full

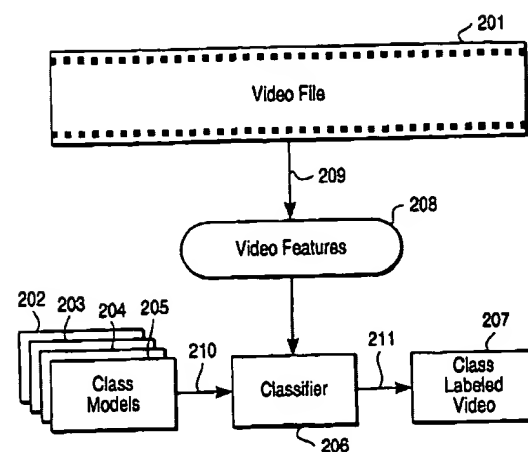


FIG. 2

200

US-PAT-NO: 6373979

DOCUMENT-IDENTIFIER: US 6373979 B1

TITLE: System and method for determining similarity among more than one image structure for enabling such determination

----- KWIC -----

Brief Summary Text - BSTX (11):

FIGS. 4A and 4B describe yet another conventional

U.S. Patent

Apr. 16, 2002

Sheet 5 of 8

US 6,373,979 B1

FIGURE 5

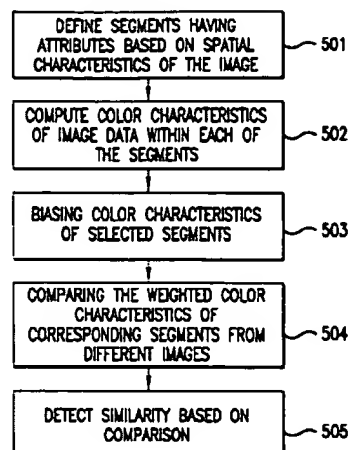
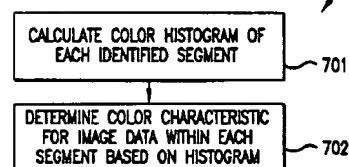


FIGURE 7



	Document I	Kind Code	Source	Issue D	Pages
1	US 2004001		US-PGP	2004012	16
2	US 2003022		US-PGP	2003121	23
3	US 2003012		US-PGP	2003070	25
4	US 2003007		US-PGP	2003042	29
5	US 2003000		US-PGP	2003010	15
6	US 2002016		US-PGP	2002110	17
7	US 2002013		US-PGP	2002092	18
8	US 2002013		US-PGP	2002091	20
9	US 2002006		US-PGP	2002052	22
10	US 2002002		US-PGP	2002030	67
11	US 2001000		US-PGP	2001062	18
12	US 2001000		US-PGP	2001062	18
13	US 6606409		USPAT	2003081	18
14	US 6404925		USPAT	2002061	64
15	US 6373979		USPAT	2002041	15
16	US 6195458		USPAT	2001022	17
17	US 5911002		USPAT	1999060	15
18	US 5576950		USPAT	1996111	23

first 145 of shot boundary locations within the identified by numerical frame number. Those skilled in the other frame comparison metrics can be used in either with the color histogram and pixel difference metric without

departing from the scope of the invention. Further frame differences, absolute frame differences, histogram comparison, or any other function that

in the computed metric values across shot boundary level of activity within individual shots can be comparison function may be computed over the entire certain predefined spatial window within the frame multiple spatial segments within successive frames

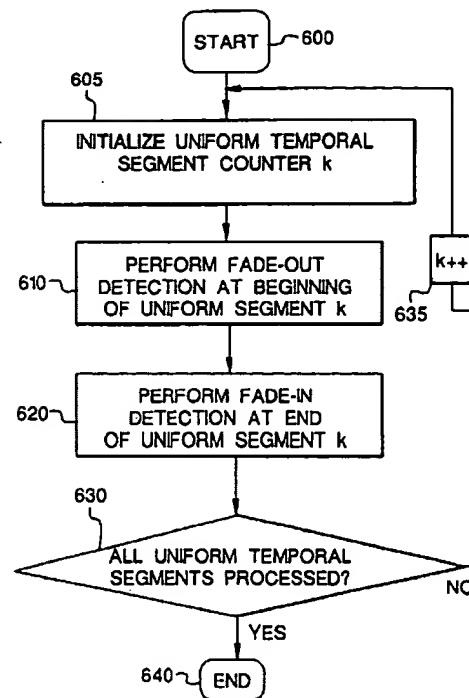


FIG. 6

	Document I	Kind Code	Source	Issue D	Pages
1	US 2003012		US-PGP	2003070	25
2	US 2003010		US-PGP	2003061	25
3	US 2002006		US-PGP	2002052	22
4	US 2002005		US-PGP	2002051	34
5	US 2002004		US-PGP	2002041	103
6	US 2001000		US-PGP	2001062	18
7	US 2001000		US-PGP	2001062	18
8	US 6636635		USPAT	2003102	94
9	US 6606409		USPAT	2003081	18
10	US 6278949		USPAT	2001082	21
11	US 6195458		USPAT	2001022	17
12	US 5933524		USPAT	1999080	9
13	US 5911002		USPAT	1999060	15
14	US 5576950		USPAT	1996111	23
15	US 4175860		USPAT	1979112	11
16	JP 2001155		JPO	2001060	

DOCUMENT-IDENTIFIER: US 20030035479 A1

TITLE: Method of using MPEG segmentation

----- KWIC -----

Abstract Paragraph - ABTX (1):

The invention relates to a method of using to extract a desired moving or still image object extracting the feature of an existing video object Plan

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	Document I	Kind Code	Source	Issue D	Page
1	US 2003019		US-PGP	2003101	39
2	US 2003017		US-PGP	2003091	25
3	US 2003014		US-PGP	2003073	20
4	US 2003013		US-PGP	2003071	6
5	US 2003012		US-PGP	2003062	84
6	US 2003008		US-PGP	2003050	39
7	US 2003008		US-PGP	2003050	25
8	US 2003007		US-PGP	2003042	29
9	US 2003006		US-PGP	2003040	29
10	US 2003006		US-PGP	2003032	94
11	US 2003005		US-PGP	2003032	16
12	US 2003003		US-PGP	2003022	14
13	US 2003003		US-PGP	2003022	24
14	US 2003001		US-PGP	2003011	9
15	US 2002017		US-PGP	2002112	18
16	US 2002017		US-PGP	2002112	15
17	US 2002015		US-PGP	2002103	12
18	US 2002015		US-PGP	2002101	30

(19) United States

(12) Patent Application Publication
Kan et al.

(10) Pub. No.: US 2003/0035479 A1
(6) Pub. Date: Feb. 20, 2003

(34) METHOD OF USING MPEG-7 STANDARD IN OBJECT SEGMENTATION

(30) Foreign Application Priority Data
Aug. 14, 2001 (TW) 90116861

(72) Inventors: Ming-Chang Kan, Chia (TW); Cheng J. Kuo, Chia (TW)

Publication Classification

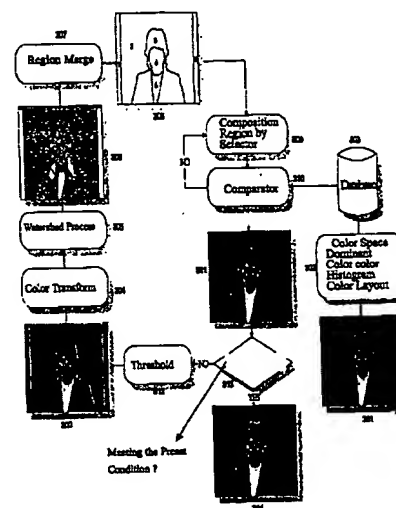
(51) Int. Cl. H04N 7/12
(52) U.S. Cl. 375/240.12; 375/240.01; 375/240.08

(57) ABSTRACT

The invention relates to a method of using MPEG-7 in object segmentation to extract a desired moving or still image object. The method includes extracting the feature of an existing video object Plan (VOP) by MPEG-7 technique and storing it in an MPEG-7 database, segmenting an input image into a plurality of objects by using the watershed process, computing each of the plurality of objects to the stored object descriptor feature, and extracting the shape and position of the most similar object in the input image.

(21) Appl. No.: 09/989,541

(22) Filed: Nov. 21, 2001



EAST - [liber.wsp:1]

File View Edit Tools Window Help

BRS: 2
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L1: (228) feature\$2 same (divid\$3 or extract\$3) same segment\$4 same (encod\$3 or compres
L2: (635) (feature\$2 or shape\$1) same (determin\$4 or classi\$5) same segment\$4 same (enc
L3: (81) 1 and 2
L4: (675) (feature\$2 or shape\$1 or object\$1) same (divid\$3 or extract\$3) same segment\$4 s
L5: (848) (feature\$2 or shape\$1 or object\$1) same (determin\$4 or classi\$5) same segment\$4
L6: (160) 4 same 5
L7: (68060) 375/\$6
L8: (24) 6 and 7
L10: (49) (feature\$2 or shape\$1) same (determin\$4 or classi\$5) same segment\$4 same (enc
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L12: (65) video\$1 same ((feature\$2 or shape\$1) with segment\$4) same descript\$4
L13: (982) video\$1 same ((feature\$2 or shape\$1) with descript\$4)
L14: (55) video\$1 same ((feature\$2 or shape\$1) with descript\$4) same segment\$3
L15: (128) video\$1 same ((feature\$2 or shape\$1 or object\$1) with descript\$4) same segmen
L16: (60) (video\$1 with (feature\$2 or shape\$1 or object\$1) with descript\$4) same segment\$4

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BRS term G&R term Image Text HTML

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1	<input type="checkbox"/>	<input type="checkbox"/>	US	20030925	16	Hierarchical video object	375/240.1	382/240		Kan, Ming-Cheng et	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	US	20030918	57	Method and apparatus for	725/112	348/461;		Sull, Sanghoon et al.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	US	20030911	23	Method for segmenting a	375/240.08	375/240.29		Maziere, Magali et al.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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6	<input type="checkbox"/>	<input type="checkbox"/>	US	20030626	84	Audiovisual management	725/40			Ferman, A. Mufit et	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	<input type="checkbox"/>	<input type="checkbox"/>	US	20030501	39	Metadata receiving	709/231	707/10		Azami, Tomohiro	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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- BRS: 2
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- BRS: compensat\$3 same
- BRS: b

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- L1: (63) (video\$1 with descript\$4) same ((feature\$1 or object\$1 or shape\$1) with segment\$5)
- L2: (1230) descript\$4 with ((feature\$1 or object\$1 or shape\$1) with segment\$5)
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- L4: (875) (feature\$1 with descript\$4) same segment\$5
- L5: (18) (feature\$1 with descript\$4) same segment\$5 same ((sound\$1 or audio\$1) with video\$1)
- L6: (52) (feature\$1 with descript\$4) same segment\$5 same video\$1
- L7: (88) ((feature\$1 or shape or object) with descript\$4) same (segment\$5 with video\$1)
- L8: (28555) 707/\$6
- L9: (57) 2 and 8**

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2 and 8

	U	1	Document	Issue Da	Page	Title	Current	Current XR	Retrieval	Inventor	S	C	P	3	
1	<input type="checkbox"/>	<input type="checkbox"/>	US	20030619	23	Method for processing data	707/1			Baatz, Martin et al.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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4	<input type="checkbox"/>	<input type="checkbox"/>	US	20021226	49	Methods and apparatus for	707/102			Li, Chung-Sheng et	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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6	<input type="checkbox"/>	<input type="checkbox"/>	US	20020926	28	Data mining application	707/100			Kil, David	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	<input type="checkbox"/>	<input type="checkbox"/>	US	20020926	14	Searching product catalogs	707/6			Aggarwal, Gaurav et	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>